



# SnowNews

January 2017

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## New releases! Report Generator and Interactive Map

This month marks the update release of two popular Snow Survey and Water Supply Forecasting Program applications, Report Generator and Interactive Map.

### Report Generator 2.0

The latest release of the [Report Generator](#) application has several new features which focus on improving the way reports are specified and how they're displayed.

Here's a brief description of the major features and enhancements in this release.

- \* In searching for a station, a new auto-complete works with all station identifier styles, both alpha and numeric values.
- \* Improved Hydrologic Unit Code (HUC) metadata support allows query by 2-digit through 12-digit HUCs.
- \* The following value types have been added: Reservoir Capacity, and % of Reservoir Capacity.
- \* Multi-station, multi-column "time series" reports group output columns by station for clarity.

	Station 1	Station 1	Station 2	Station 2
Date	Elem 1	Elem 2	Elem 1	Elem 2
Jan 2011	xxxx	xxxx	xxxx	xxxx
Feb 2011	xxxx	xxxx	xxxx	xxxx

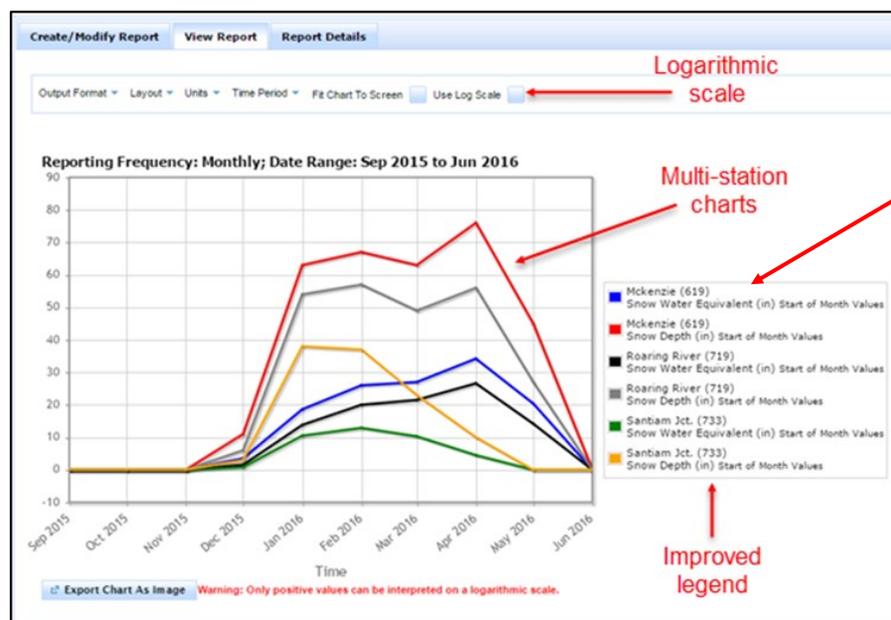
*New output format: Multi-station, multi-column "time series" reports..*

- \* Instantaneous data can be reported as start or end of data period. Water and Climate Information System (WCIS) data can be easily compared with other data sources.
- \* Enhanced Chart output. Multi-station charting, logarithmic scale option, better legend, and tool-tips are now provided.
- \* Enhanced CSV support. Report Generator now automatically opens CSV data in a new browser tab. The application also recommends CSV output when HTML display will run long.
- \* A new **Report Details** view describes data elements used in the report output, on Report Details tab in browser, and included with the CSV output.
- \* Better-saved report URLs; sort order, log-scale chart, other options are encoded in the URL to deliver the intended report output immediately.
- \* Improved sorting of report output, including by columns within time series reports.

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*Multi-station charting, logarithmic scale, and an improved legend are featured in the 2.0 release of Report Generator.*

### Interactive Map 3.0 Beta

The 3.0 Beta release of the [Interactive Map](#) has lots of new features, including more detailed and in-depth analysis of seasonal peak snowpack; more user-configurable options for features such as reference periods, scales, and colors; and dynamically-generated basin-filled maps based on Hydrologic Unit Code (HUC) boundaries.

Here's a more complete description of the new features and enhancements in this release.

#### New Elements

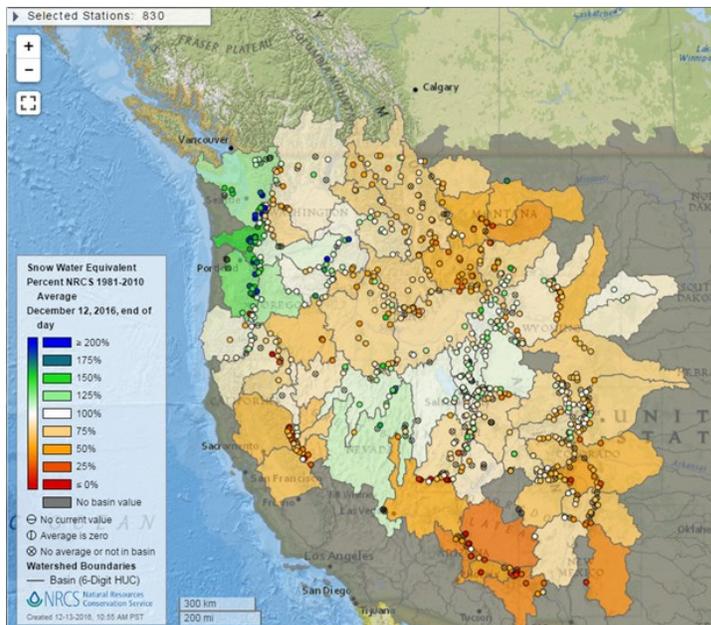
- \* Snow Water Equivalent Delta, Snow Depth Delta, and Reservoir Storage Delta.
- \* Snow Water Equivalent and Snow Depth Water Year Peak and Date of Water Year Peak.
- \* Snow Density and Snow Density Delta.
- \* Streamflow Volume Forecasts for any publication date and target period.

#### Basin Mode

- \* Calculates and displays a basin value for Hydrologic Unit Code (HUC) 2, 4, 6, or 8, as long as at least three usable stations exist in the region.

#### Data Display Options

- \* User-selectable legend scale.
- \* User-selectable Reference Period and minimum number of years needed for display.



*The Beta version of the Interactive Map displays watershed boundaries as well as individual sites within each watershed.*

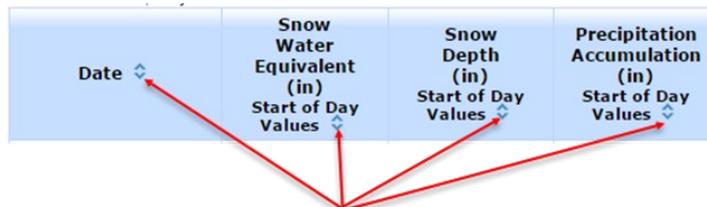
#### Relative Date in URL

- \* Allows users to create a link that will always show "current" conditions.

During the Beta testing phase of the Interactive Map, users are encouraged to evaluate the new features and capabilities of the release.

Use the 'Give us feedback' button on the Interactive Map if you have comments or suggestions.

For questions or more information, contact [Gus Goodbody](#), 503-414-3033.



**Report Generator's sortable columns and clearer column headers for instantaneous data reporting and custom features.**

## Annual SnowPAC workshop brings western states together

The Snow Survey and Water Supply Forecasting (SSWSF) Program held its annual Snow Program Advisory Committee (SnowPAC) operational workshop December 5-8, 2016.

Participating both in-person and via videoconference, almost 40 representatives from all 12 western states attended the 4-day meeting.

Hosted by the National Water and Climate Center (NWCC), based in Portland, Oregon, the meeting kicked off with discussions on the 2017 budget, administrative transformation process, staffing, and program organization. This discussion was led by **Mike Strobel**, NWCC Director and SSWSF Acting Program Manager.

Tuesday's sessions focused on the role of the SnowPAC team, including SSWSF Program priorities and the group's decision-making process.

**Cara McCarthy**, Water and Climate Services (WCS) Team Lead, provided an update on her team's activities, including the Beta release of the popular Interactive Map, updated forecaster assignments.

Cara also reported on the status of future plans, including update to the DMP application, a status update on the Enterprise Content Management project, and a VIPER update. In addition, Cara noted new work being done by Boise Agricultural Research Service on the iSNOBAL application.

Forecast Hydrologist **Gus Goodbody** then provided an overview of the 2016 streamflow forecast verification and new functionality in the AWDB

Reporting and External Data Fetch applications.

Next on the agenda, NWCC Development Hydrologist **David Garen** gave the group a demonstration of the new Back-Estimation application, which allows users to correlate historical snow course data with co-located SNOTEL sites.

Wednesday's sessions kicked off with a presentation by acting Information Systems Team Lead, Rashawn Tama. Rashawn discussed the current status of IT initiatives and an update on the funding process for this fiscal year. He also provided a status on the project to migrate SSWSF Program applications from Portland, OR, to the secure environment in Kansas City, MO.

**Jolyne Lea**, NWCC Forecast Hydrologist, then gave the SnowPAC group an update on her climate work, including new features in the AgACIS application.

Washington Water Supply Specialist **Scott Pattee** provided an overview of the agency's new ATV/UTV policy, due to be released soon. Scott also updated the group on his evaluation of Sommer snow scales.

Telemetry updates were next on the agenda. **Deb Harms**, Water and Climate Monitoring Acting (WCM) Team Lead and **John Weeks**, Electronics Maintenance Facility (EMF) Lead Technician discussed the current status of the Dugway and Boise Master Stations and the development of a new, solid-state Master Station. Deb then gave an update on the transition of some sites to cellular modem and satellite telemetries.

New WCM employee and Hydrologist **Alex Rebentisch** and Deb then presented details on current research and development activities, including the placement of several new sensors at the Mt. Hood Experimental SNOTEL Test Site.

Wednesday afternoon, Montana Water Supply Specialist **Lucas Zukiewicz** detailed his evaluation of possible new thermistors for use by the Program, and Alex also gave details on an associated temperature study.

Deb and John then gave the team an update on the recent problems one of the Program's transducer vendors has experienced and work to mitigate issues.

The Thursday morning agenda featured a presentation by Kerry McClay and Idaho Water Supply Specialist **Ron Abramovich**, focusing on a Snow School for elementary school children.

Next, representatives from each of the western states provided brief updates on their current activities and plans for the upcoming year.

**Brian Domonkos**, Colorado Data Collection Office Supervisor, then updated the group on the requirements for annual physicals. A policy memo will be drafted to summarize the requirements.

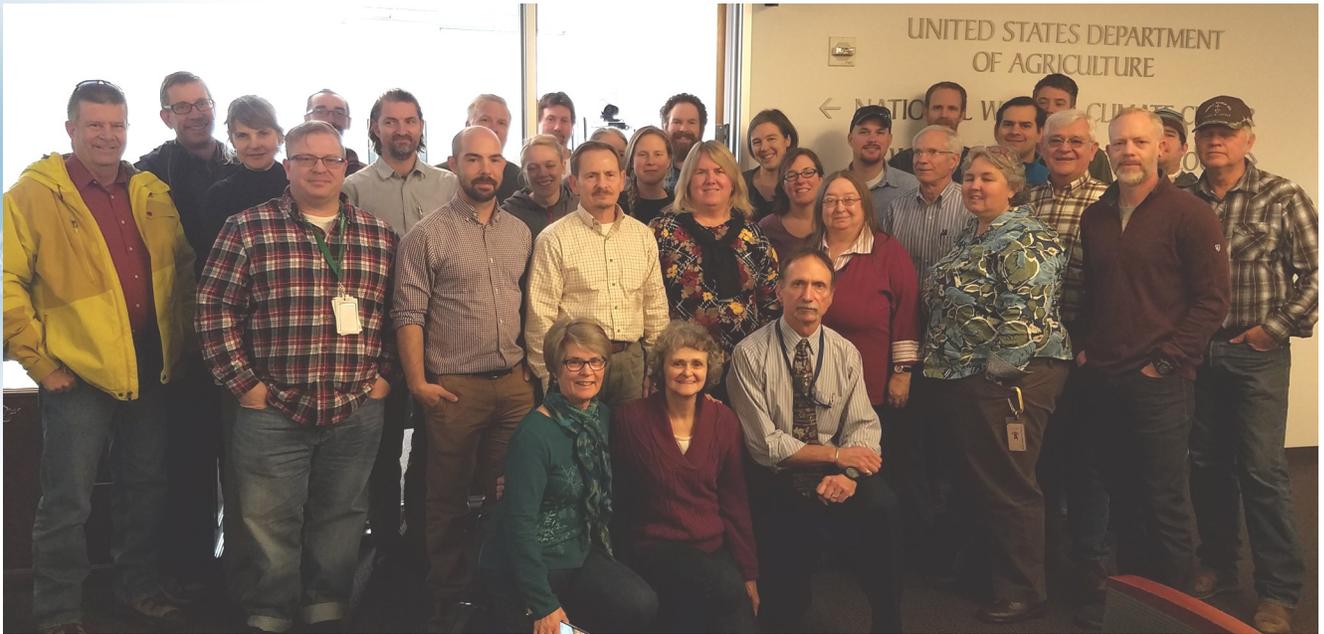
The meeting concluded with a discussion of the Program's new decision-making process and how best to implement it.

Working groups were set up to tackle specific SSWSF problems and concerns. These groups will report their status at the monthly SnowPAC teleconferences.

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The 2017 annual SnowPAC meeting is scheduled for the first full week in December.



*2016 SnowPAC participants (and retirees) included (Front Row): Rose Loehr (retired), Laurel Grimsted (retired), Mike Strobel. (Second row) Bruce Green, Joshua Roach, David Garen, Jolyne Lea, Jo Huelshoff, Deb Harms, Chris Romero, Randy Julander. (Third Row): James Bauchert, Cara McCarthy, Rashawn Tama, Lexi Landers, Lauren Austin, Julie Koeberle, Phil Morrissey, John Weeks. (Fourth Row): Jeff Anderson, Karl Wetlaufer, Dan Fries, Bill Overman, Daniel Fisher, Melissa Webb, Alex Rebertisch, Gus Goodbody, Brian Domonkos, Danny Tappa, Lucas Zukiewicz.*

## Call for Papers: 85th Annual Western Snow Conference

Organizers of the first joint meeting between the Western Snow Conference (WSC) and the [Weather Modification Association \(WMA\)](#) have issued their first call for papers. The 2017 conference will be held in Boise, Idaho from April 17-20, 2017.

Participants are invited to submit an abstract of 150 – 300 words for either oral or poster presentations by **January 31, 2017**.

Submit abstracts by completing the [online submission form](#).

Suggested topics for paper submissions include:

- \* Snow modeling
- \* Observed trends in snow-pack conditions
- \* Direct measurement and remote sensing of snow cover



- \* Hydrologic processes during dry years
- \* Environmental issues regarding snow and runoff
- \* All aspects of any cryosphere topic

This first-ever combined conference with the WMA will kick off with a Monday afternoon short course “Tracing the Effects of Cloud Seeding through the Hydrologic Cycle.”

Tuesday will feature a joint plenary session, followed by concurrent sessions of oral and poster presentations.

The Thursday technical tour will consist of a visit to the Dry Creek Experimental Watershed, an NRCS SNOTEL site, and a collaborative weather station for youth education.

For more information, go to the [WSC website](#) or contact [westernsnowconference@gmail.com](mailto:westernsnowconference@gmail.com)

# Hydrologic modeling workshop held in Portland

[Dr. David Garen](#)

**NWCC Development Hydrologist**

The National Water and Climate Center (NWCC) hosted a workshop on hydrologic simulation modeling during the week of 17-21 October.

The purpose of the workshop was to engage Snow Survey and Water Supply Forecasting (SSWSF) Program personnel in testing and using the system that has been under development for several years in collaboration with partners at Portland State University (PSU) and Colorado State University (CSU).

Participants went through all steps in setting up and running the model. This included performing spatial watershed analyses with the Basin Analysis GIS (BAGIS, BAGIS-H, BAGIS-P) tools developed at PSU as well as preparing climate forcing data, calibrating, and running the Precipitation-Runoff Modeling System (PRMS) hydrologic model within the web-based environment called eWSF, developed by CSU.

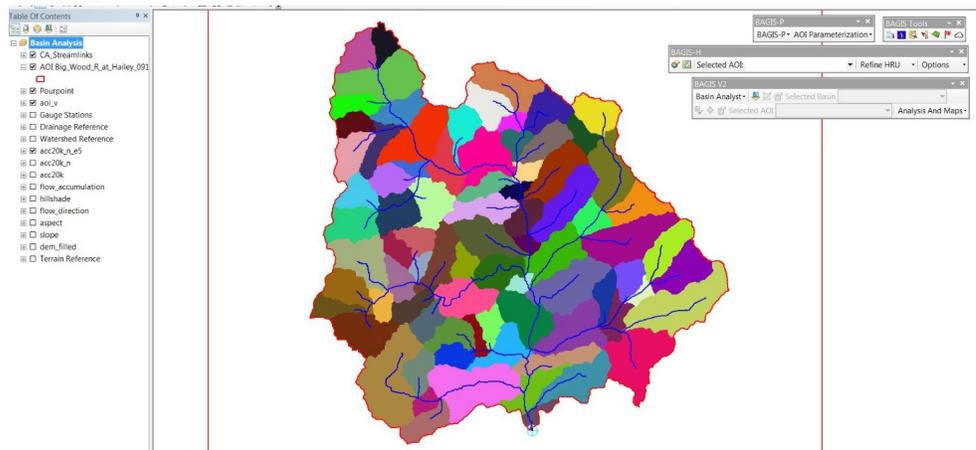
SSWSF Program participants included: Lauren Austin and Joshua Roach, Oregon Data Collection Office (DCO); Danny Tappa, Idaho DCO; Karl Wettlaufer, Colorado DCO; and Lucas Zukiewicz, Montana DCO.

Dr. Scott Havens of the Agricultural Research Service in Boise also participated. Project partners from CSU included Dr. Olaf David, Dr. George Leavesley, and Dave Patterson. PSU was represented by project partner Dr. Geoffrey Duh.

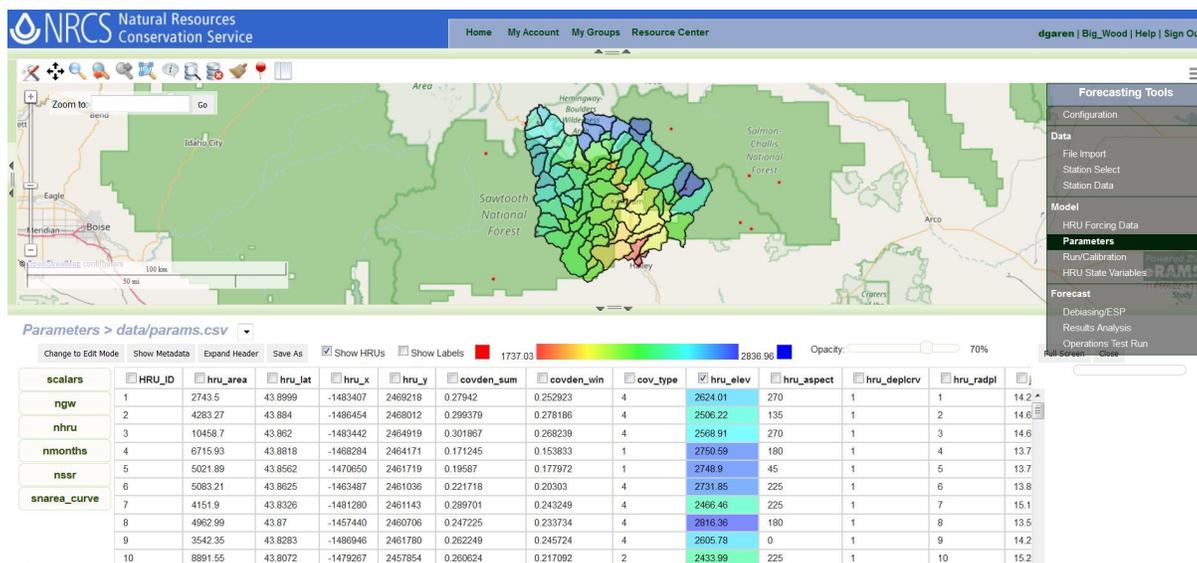
The workshop was led by NWCC hydrologists Gus Goodbody and Dr. David Garen. Hydrologists Cara McCarthy, Jolyne Lea, and Rashawn Tama also participated.

The workshop was successful in that all participants were able to make it through the multiple steps of setting up and running a hydrologic model.

The experience and feedback from the workshop will be very valuable in guiding further completion and refinement of both the BAGIS and eWSF systems.



*Performing a spatial watershed analysis using the Basin Analysis GIS application.*



*Example of the web-based Precipitation-Runoff Modeling System (PRMS) hydrologic model, called eWSF.*



## Photo of the Month



A snow tunnel on the Silverton and Ouray Toll Road. Photographer: William Henry Jackson (1843-1942).

A team of horses pulls a wagon full of men through a snow tunnel along the Otto Mears Toll Road in either Ouray County or San Juan County, Colorado. Photo taken between 1883 and 1900.

Photo submitted by Randy Julander

# Snow Survey and Water Supply Forecasting Program

## Resource Locator

Here's a handy reference for finding resources in the Snow Survey and Water Supply Forecasting Program.

Where	What	Who	How
Alaska	Forecast Hydrologist	Jolyne Lea 503-414-3040	<a href="mailto:jolyne.lea@por.usda.gov">jolyne.lea@por.usda.gov</a>
	Data Collection Office Supervisor	Daniel Fisher 907-671-7746	<a href="mailto:daniel.fisher@ak.usda.gov">daniel.fisher@ak.usda.gov</a>
Arizona	Forecast Hydrologist	Jolyne Lea 503-414-3040	<a href="mailto:jolyne.lea@por.usda.gov">jolyne.lea@por.usda.gov</a>
	Water Supply Specialist	Dino De Simone 602-280-8786	<a href="mailto:dino.desimone@az.usda.gov">dino.desimone@az.usda.gov</a>
California	Forecast Hydrologist	Jolyne Lea 503-414-3040	<a href="mailto:jolyne.lea@por.usda.gov">jolyne.lea@por.usda.gov</a>
	Water Supply Specialist	Greg Norris 530-792-5609	<a href="mailto:greg.norris@ca.usda.gov">greg.norris@ca.usda.gov</a>
Colorado	Forecast Hydrologist	Cara McCarthy 503-414-3088	<a href="mailto:cara.s.mccarthy@por.usda.gov">cara.s.mccarthy@por.usda.gov</a>
	Hydrologist	Karl Wetlaufer 720-544-2853	<a href="mailto:karl.wetlaufer@co.usda.gov">karl.wetlaufer@co.usda.gov</a>
	Data Collection Office Supervisor	Brian Domonkos 720-544-2852	<a href="mailto:brian.domonkos@co.usda.gov">brian.domonkos@co.usda.gov</a>
Idaho	Data Collection Officer (acting)	Dan Tappa 208-378-5740	<a href="mailto:daniel.tappa@id.usda.gov">daniel.tappa@id.usda.gov</a>
	Forecast Hydrologist	Rashawn Tama 503-414-3010	<a href="mailto:rashawn.tama@por.usda.gov">rashawn.tama@por.usda.gov</a>
	Water Supply Specialist	Ron Abramovich 208-378-5741	<a href="mailto:ron.abramovich@id.usda.gov">ron.abramovich@id.usda.gov</a>
Montana	Data Collection Office Supervisor	Mage Hultstrand 406-587-6844	<a href="mailto:mage.hultstrand@mt.usda.gov">mage.hultstrand@mt.usda.gov</a>
	Forecast Hydrologist	Cara McCarthy 503-414-3088	<a href="mailto:cara.s.mccarthy@por.usda.gov">cara.s.mccarthy@por.usda.gov</a>
	Water Supply Specialist	Lucas Zukiewicz 406-587-6843	<a href="mailto:lucas.zukiewicz@mt.usda.gov">lucas.zukiewicz@mt.usda.gov</a>
Nevada	Forecast Hydrologist	Jolyne Lea 503-414-3040	<a href="mailto:jolyne.lea@por.usda.gov">jolyne.lea@por.usda.gov</a>
	Water Supply Specialist	Jeff Anderson 775-857-8500 x152	<a href="mailto:jeff.anderson@nv.usda.gov">jeff.anderson@nv.usda.gov</a>
New Mexico	Forecast Hydrologist	Gus Goodbody 503-414-3033	<a href="mailto:angus.goodbody@por.usda.gov">angus.goodbody@por.usda.gov</a>
	Water Supply Specialist	Chris Romero 520-292-2999 x107	<a href="mailto:chris.romero@nm.usda.gov">chris.romero@nm.usda.gov</a>
Oregon	Forecast Hydrologist	David Garen 503-414-3021	<a href="mailto:david.garen@por.usda.gov">david.garen@por.usda.gov</a>
	Hydrologist	Melissa Webb 503-414-3270	<a href="mailto:melissa.webb@or.usda.gov">melissa.webb@or.usda.gov</a>
	Data Collection Office Supervisor	Scott Oviatt 503-414-3271	<a href="mailto:scott.oviatt@or.usda.gov">scott.oviatt@or.usda.gov</a>
Utah	Forecast Hydrologist	Gus Goodbody 503-414-3033	<a href="mailto:angus.goodbody@por.usda.gov">angus.goodbody@por.usda.gov</a>
	Snow Survey Supervisor	Randy Julander 801-524-5213	<a href="mailto:randy.julander@ut.usda.gov">randy.julander@ut.usda.gov</a>
Washington	Forecast Hydrologist	Gus Goodbody 503-414-3033	<a href="mailto:angus.goodbody@por.usda.gov">angus.goodbody@por.usda.gov</a>
	Water Supply Specialist	Scott Pattee 360-428-7684	<a href="mailto:scott.pattee@wa.usda.gov">scott.pattee@wa.usda.gov</a>
Wyoming	Forecast Hydrologist	Cara McCarthy 503-414-3088	<a href="mailto:cara.s.mccarthy@por.usda.gov">cara.s.mccarthy@por.usda.gov</a>
	Water Supply Specialist	Lee Hackleman 307-233-6744	<a href="mailto:lee.hackleman@wy.usda.gov">lee.hackleman@wy.usda.gov</a>
All States	Center Director/Program Manager	Mike Strobel 503-414-3055	<a href="mailto:michael.strobel@por.usda.gov">michael.strobel@por.usda.gov</a>
	Information Systems Team Lead (acting)	Rashawn Tama 503-414-3010	<a href="mailto:rashawn.tama@por.usda.gov">rashawn.tama@por.usda.gov</a>
	Water & Climate Monitoring Team Lead (acting)	Deb Harms 503-414-3050	<a href="mailto:deb.harms@por.usda.gov">deb.harms@por.usda.gov</a>
	Water & Climate Services Team Lead	Cara McCarthy 503-414-3088	<a href="mailto:cara.s.mccarthy@por.usda.gov">cara.s.mccarthy@por.usda.gov</a>
	Database Manager	Maggie Dunklee 503-414-3049	<a href="mailto:maggie.dunklee@por.usda.gov">maggie.dunklee@por.usda.gov</a>
	Database Manager	Vacant	
	Hydrologist (Water & Climate Monitoring)	Deb Harms 503-414-3050	<a href="mailto:deb.harms@por.usda.gov">deb.harms@por.usda.gov</a>
	Development Hydrologist	David Garen 503-414-3021	<a href="mailto:david.garen@por.usda.gov">david.garen@por.usda.gov</a>
	Operations Specialist (SNOTEL/SCAN)	Vacant	
	Resource Conservationist	Vacant	
	Statistical Assistant/SCAN QC	Vacant	



**Contact Help Center**

There's an online tool to help locate resources within the Snow Survey and Water Supply Forecasting Program.

Click [here](#) to open the **Contact Help Center**. Don't forget to bookmark the url.

## Upcoming events

Events of interest in the coming months.



**What:** Westwide Snow Survey Training School

**When:** January 9-13, 2017

**Where:** Bend, OR

**More information:** [Deb Harms](#), 503-414-3050

**What:** Snow Survey and Water Supply Forecasting Program Field Operations Workshop

**When:** April 10-13, 2017

**Where:** Bozeman, MT

**More information:** [John Weeks](#), 503-820-5740.

**What:** 85th Annual Western Snow Conference

**When:** April 17-20, 2017

**Where:** Boise, ID

**More information:** [Conference Overview](#)



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www.wcc.nrcs.usda.gov/SnowNews/
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Our mission is: "To lead the development and transfer of water and climate information and technology which support natural resource conservation."



With a vision of the future as:
"A globally-recognized source for a top quality spatial snow, water, climate, and hydrologic network of information and technology."

Director's Corner: World Population Growth



In a recent discussion, I was asked about future impacts to our environment from climate change. Although there are many issues related to future stresses on society, such as climate change, limited water supplies and limited food production, all of which are intertwined, the one issue that often is difficult to address is population growth. Climate change will certainly alter water supplies and food production in many areas, however the one factor that will continue to increase as an environmental stressor is human population growth.

This, of course, is a difficult issue to address because of the political, cultural and societal implications surrounding any discussion on mitigation. We can often talk about mitigation of

climate change in terms of reducing greenhouse gas emissions and in the allocation and wise use of water resources, both in political and economic perspectives, but it's much more difficult when addressing population.

The U.S. Census Bureau estimates, at current growth rates, that we will reach well over 9 Billion people on the planet by the mid 2040s. That is a tripling of the population in my lifetime, should I live another 25 years (hopefully). People require land, food and water, all of which are limited.

tinue to work toward ways to improve our measurement and management of water supplies, assist in the development of better agricultural practices to reduce erosion, improve soil health, and increase productivity and crop tolerance to changing conditions, and continue to seek ways to expand on our understanding of climate and the changes we anticipate in the near future. This is how we can contribute to making our world a better place. And hopefully, we can continue to find solutions to provide the necessary resources for this growing world population.

As a water scientist and as part of the USDA, we will con-

Mike



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